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Registration No.	: 1010125012	**Major Subject** **Minor Subject**	: Agricultural Extension Education : Agricultural Economics
Current Semester	: 2nd Semester	**Degree**	: Ph. D. (Agricultural Extension Education)
Major Guide	: Dr. J. V. Chovatia	**Minor Guide**	: Dr. V. D. Tarpara
Title of Research Work	**: IMPACT ASSESSMENT OF FRONT LINE DEMONSTRATIONS (FLDs) CONDUCTED BY KRISHI VIGYAN KENDRAS OF *SAURASHTRA* REGION OF GUJARAT STATE**		

(1) INTRODUCTION

In the agricultural year 1991-92, the Indian Council of Agricultural Research (ICAR) established the first time Front Line Demonstrations (FLDs) drive as part of its first line transfer of technology with the grassroot level of farmers. These facilities provide to farmers by experienced expert from the ICAR institutes, SAUs, different region of Krishi Vigyan Kendras are directly demonstrate the recommended scientific practices in farmers fields. Front Line Demonstration technology is provided to opportunities to farmers particularly those have illiterate or lower education level for the understanding of the scientific technology and observed the performance under his field condition. These methods are reducing the gap between recommended scientific technology and their practical application. However, farmers are participating in Front Line demonstration programme and they received various hand-on trainings, experimental learning, enhanced the practical knowledge and develop new skill in crop production or management practices. (Anonymous, 2026).

Krishi Vigyan Kendras are also known as farm science centres, this is innovative institutions launched to bridge the gap between agricultural research and farming communities, improved agricultural productivity, increase to farmers income and effective transfer or dissemination of the advance technology. Majority of the farmers are depended on the traditional method and achieved the lower yield. tackle this limitation for the Indian Council of Agricultural Research are established the Front Line Demonstration through new released technology and improved practices directly in farmers field. KVKs are play crucial role in spreading of the

location specific improved technology and various modules, efficient resource management practices. They serve as the pivotal link between extension agencies and farmers, thereby reinforcing the technology dissemination process. The main objectives of KVKs are adequately communicate the morden agricultural technology to farmers and extension workers, thereby reduce the time gap between the development of technology and at grassroot level of adoption of technology. This gap is reducing various vocational training programme for farmers, building capacity development and knowledge upgradation of extension personal, on farm testing of technology and implement the Front Line Demonstration on the various crop of directly farmers field.

Krishi Vigyan Kendras are worked based on the principle of "learning by doing", location specific with requirement basis and farmers oriented extension activities. The main aim of the KVKs is on farm testing are evaluate for the suitability and better performance of agricultural technology under real the farm conditions, conducting Front Line Demonstration to demonstrate the modern practices and technology at their farmers field, providing training to farmers, extension personal and also sharing the timely advisory services. Frontline Demonstrations are emerged as the one the most effective mechanisms for transfer of technology, increase the adoption level or impact at the field level.

Krishi Vigyan Kendras are implemented Front Line Demonstrations on farmers under the direct supervision of the agricultural experts or scientists with the primary focus of demonstrating the production potential and economic advantages of released improved practices or technologies on various crops. Front Line Demonstrations are specially designed to dissemination large-scale through extension channel system for the grassroot level of farmers retained the knowledge regarding the improved practices and they can adopt the modern technology with least difficulties encountered. This demonstration conducted on the various component like integrated pest and disease management, improved crop varieties production, integrated nutrient management, modern agronomic practices and sufficient utilization of natural resources. The systematically comparing the demonstrated technologies with already adopted traditional methods by the farmers, for his enhancement of yield, secured livelihood, long-term sustainability and profitability.

The Front Line Demonstration are conducted various stage and it gives opportunities to farmers for involvement at different stage like a planning, implementation, observation and analysis. The hands on trainings participation facilitates farmers to first self experience with recently improved technology, reduces the confusion, unpredicted risks and also their increase the farmers confidence of the suitability of these technology. Front Line Demonstration not only

increase the farmers knowledge, but also facilitate the more rapidly adoption, as a resulting in expanded horizontal dissemination of technologies among the farmers community.

For the successfully implemented of Front Line Demonstration is depended on the several factors of farmers such as socio-demographic characteristics, availability of resources, region climatic conditions and the level of institutional support. There for assessment the impact of FLDs is require periodically to evaluate the changes in the farmers knowledge, adoption level, faced various constraints, stability of crop productivity and economic returns from the FLDs. Some determining studies are identifying the various level of gaps, constraints and suggestion for improving the extension strategies.

The Gujarat state is located on the western coast of India. Gujarat cover a geographical area of around the 19.6 million hectares. The *Saurashtra* region of Gujarat is leading significant position in agricultural and dairying sector of India. The region consists of several districts and diverse various region topography with climatic condition. The *Saurashtra* region is predominantly dependent on the South-West monsoon and faced various erratic rainfall patterns, periodic drought and irregular precipitation are serious challenges in agricultural production, resulting high and low crop productivity across the region.

Saurashtra region in soil is medium black to shallow with gravelly, low organic content and various deficient of essential nutrients, poor water holding capacity constraints in crop growth and yield. *Saurashtra* region in farmers are growing various major crops such as groundnut, cotton, wheat, pigeon pea, mung bean, sorghum and horticultural crops, there are highly depending on rainfall and irrigation availability.

In this region farmers are faced various constraints, lack of knowledge regrading improved agricultural practices, limited access to quality inputs, occurrence of pests and diseases and susceptibility to climatic variability, lack of sufficient resources small and medium land holdings, trade manipulation all are reduce the chances of adopting new technology.

In dealing with these challenges, *Saurashtra* region in well functioning 7 Krishi Vigyan Kendras operating under the Junagadh Agricultural university, Junagadh and others 2 KVKs fall under private NGO administration. This Krishi Vigyan Kendras are actively implementing Front Line Demonstration on different crop based on area and farming systems. In the past, received various suggestion like demonstration are designed and planning according to region specific issues related such as low productivity, nutrient deficiencies, pest and diseases management, moisture stress, standard quality of crop varieties and climate resilient practices. In the region all KVKs are actively working on this suggestion and regularly investigate on farmers to know for the better dissemination of this technology.

Over the many years, different Krishi Vigyan Kendras are conducted number of Front Line Demonstration on various component and this efforts are facilitate the positively and notable significant outcomes, it is necessary determine to periodically assess their impact of various influence on farmers knowledge, adoption levels, crop yields and his economic returns. Lacking of the such assessment, investigating the performance of FLDs as an extension initiatives and justifying continued deployment of resources are become more difficult.

(2) STATEMENT OF THE PROBLEM

In India, various agricultural research institutions are actively working on the develop improved practices and morden technologies focused on enriching crop productivity and rising farmers income. Success rate of this technologies is largely depending on their extent of adoption by the farmers in his under actual field conditions. In the *Saurashtra* region, notable gap consistent between recommended scientifically agricultural practices and their adoption at the field level. This gap hindrance the full recognition of benefits from research institute and impedes the pace of agricultural growth.

Krishi Vigyan Kendras are play a crucial role in reduce the gap through implementation of FLDs and technologies are demonstrated directly on farmers fields for revealing performance of improved technologies. In the *Saurashtra* region of Gujrat, a large number of Front Line Demonstrations have been conducted over the years by different KVKs. Comprehensive documentation on farmers socio-demographic characteristic, knowledge level, level of adoption, actual productivity and their yearly economic returns.

In the lack of comprehensive the impact assessment of FLDs, it become challenging to analysed the outcomes of Front Line Demonstrations as an extension approach and determine strengths, gaps in their planning level and implementation. Research based evidence on the impact of Front Line Demonstrations is highly need to refining extension policies, enhancing resource allocation and improving farmers based technology dissemination systems.

Keeping this in mind, research study on **'Impact Assessment of Front Line Demonstrations (FLDs) Conducted by Krishi Vigyan Kendras of *Saurashtra* Region of Gujarat State'** is proposed to be undertaken.

(3) OBJECTIVES OF THE RESEARCH

Keeping this in view, the present investigation on "**Impact Assessment of Front Line Demonstrations (FLDs) Conducted by Krishi Vigyan Kendras of *Saurashtra* Region of Gujarat State**" will be undertaken with the following objectives:

1. To study the profile of farmer
2. To develop and validate a test to measure the knowledge level of farmers regarding Front Line Demonstrations
3. To develop a standardize scale to measure the extent of adoption of Front Line Demonstrations by farmers
4. To analyze the impact of Front Line Demonstrations on farming communities
5. To study the relationship between the profile of farmer with their knowledge and adoption of Front Line Demonstrations
6. To identify the constraints faced by farmers in the adoption of Front Line Demonstrations and to seek their suggestions for effective implementation

(4) REVIEW OF LITERATURE

Patel *et al*. (2023) studied that nearly one-half (48.00%) of groundnut growers were in between 36-50 years age group, followed by 26.67 per cent were above 50 years age group and 25.33 per cent were below 35 years age group.

Chaudhary *et al*. (2022) observed that more than two-fifth (37.14%) of the mung bean had middle school education, followed by 30.00 per cent had primary school, 12.86 per cent had high school education, 10.00 per cent were functionally literate and 5.71 per cent had under graduation/post-graduation education. Only 4.29 per cent were illiterate.

Negi (2023) reported that more than two-fifth (46.15%) of the respondents had high level of farming experience, followed by 33.34 per cent had medium level of farming experience and 20.51 per cent had low farming experience.

Kachchhava *et al*. (2023) concluded that more than two-fifth (41.34%) of the muskmelon growers had semi-medium land holding, followed by 35.33 per cent had small land holding, 14.47 per cent had marginal land holder, 7.33 per cent had medium land holding and 1.53 per cent had large land holding.

Singh *et al*. (2024) observed that more than two-fifth (45.00%) of the respondents have income between ₹ 1,20,001 to ₹ 1,80,000, followed by 22.00 per cent respondents have income ₹ 60,001 to ₹ 1,20,000, 15.00 per cent have income between ₹ 1,80,001 to ₹ 2,40,000, 10.00 per cent have income up to ₹ 60,000 and 8.00 per cent of the respondents have income above ₹ 2,40,000.

Das *et al*. (2024) concluded that majority (79.17%) of the respondents were engaged only in farming occupation, followed by 12.50 per cent in farming with animal husbandry occupation, 5.00 per cent in farming with business, 2.50 per cent in farming with service and 0.83 per cent in farming with business and service occupation.

Gogoi *et al*. (2024) indicated that more than two-fifth (43.75%) of the mustard growers possessed medium level of social participation, followed by 30.84 per cent had low level of social participation and 25.41 per cent had high level of social participation.

Karthickraja *et al*. (2023) revealed that more than three-fifth (66.67%) of the farmers had participated in one training programmes, followed by 25.00 per cent farmers had not participated in any training and 8.33 per cent had participated in more than one training programmes.

Lenin and Mazhar (2024) noticed that more than two-fifths (46.67%) of the mustard growers were found to have medium level of source of information, followed by 31.67 per cent had low level of source of information and 21.66 per cent had high level of source of information.

Raviya (2020) reported that more than one-half (57.92%) of the farmers had medium innovativeness, followed by 30.00 per cent had low innovativeness and 12.08 per cent had high innovativeness.

Kumar *et al*. (2024) noticed that more than three-fifth (68.33%) of the onion growers had medium level of scientific orientation, followed by 19.16 per cent had low level of scientific orientation and 12.51 per cent had high level of scientific orientation.

Bidve *et al*. (2021) depicted that more than one-half (56.67%) of the pomegranate growers had medium level of risk orientation, followed by 24.44 per cent had low level of risk orientation, 18.89 per cent had high level of risk orientation.

Singh *et al*. (2021) reported that more than three-fifth (64.00%) of the wheat growers had moderate level of economic motivation, followed by 26.00 per cent had higher level of scientific orientation and 14.00 per cent had lower level of economic motivation.

Sonu and Jha (2025) found that majority (75.00%) of the makhana growers had medium knowledge level, followed by 15.00 per cent had high knowledge level and 10.00 per cent had low level of knowledge.

Tankodara *et al*. (2020) noticed that more than three-fifth (64.17%) of the chickpea growers has adopted medium level of recommended technology, followed by 21.67 per cent exhibited a low level of adoption and 14.16 per cent had high extent of adoption about improved chickpea production technologies.

Chaudhary *et al*. (2018) studied that average yield of four mustard varieties (Pusa Jagannath, NRCHB-101, Pusa Vijay and ND -8501) were 21.50 q/ha, 19.50 q/ha, 16.21 q/ha and 13.71 q/ha during the years of 2013-14 and 2014-2015, respectively. While, the impact measure against the local variety Varuna and yield are increase were 29.13 per cent, 17.12 per cent, 3.93 per cent and 27.53 per cent during the years of 2013-14 and 2014-15.

Akash (2024) revelated that impact of before FLDs on yield is more than two-fifth (44.45%) had low impact, followed by 36.11 per cent had medium impact and 19.44 per cent had high impact of yield. While, after the FLDs impact n yield is recorded (52.22%) had medium impact, followed by 26.67 per cent had high impact and 21.11 per cent had low impact on yield.

Kumar *et al*. (2022) found that majority (78.00%) of the respondents constraint faced low productivity, followed by 69.00 per cent faced availability of improved variety seed, 60.00 per cent faced wild animal/birds damage, 55.00 per cent faced disease incidence, 52.00 per cent faced uncertainty of rains/drought, 42.00 per cent are faced low technical knowledge and 36.00 per cent are faced post harvest management in pulse production.

Hashim *et al*. (2023) noticed that great majority (98.00%) of the respondents constraints faced is awareness and lack of suitable, followed by 96.00 per cent are faced unavailability of disease resistance variety, 94.00 per cent faced unavailability of efficient manpower, 88.00 per cent had faced inadequate infrastructure, 86.00 per cent faced lack of proficiency in using insecticides, 84.00 per cent faced adequate supply of inputs, 82.00 per cent faced low level of technical expertise in paddy cultivation and 80.00 per cent faced higher cost of input.

Verma *et al*. (2018) revealed that great majority (95.00%) of the soyabean growers suggested technical knowledge about new technology should provide to farmers timely, (92.50%) periodic meeting with RAEO's and subject matter specialist should be made sure, (87.50%) training programme should be organized by the KVK, (85.00%) loaning process should be easier, (80.00%) price should be decrease of agricultural inputs, (61.25%) production of Multimedia information should be increase and reach to the last user of technology and (56.25%) are suggested government should provide proper market.

(5) RESEARCH METHODOLOGY

Location of Research	The study will be purposively conducted in *Saurashtra* region of Gujarat state.
Sampling Technique	The present study for will be used a Multistage sampling technique for selection of district, talukas, village and respondents.

Selection of the Respondents	The selection of respondent done by simple random techniques and total 270 selected.
Research Design	This study will be conducted under the "***ex-post-facto***" research design for the independent variable were already they operated in the study area. Kerlinger (1976) revealed that the "***ex-post-facto***" research design is effectively when independent variables have already acted upon and that design will be used in the current study.
Method of data collection	For the effectively measurement of all pertinent aspects with light of objectives of the study, an interview schedule with questions of all independent and dependent variables according will be prepared for the collection of data. 30 respondents are selected out of this study for the pre-testing of the questionnaire. After the few modifications, questionnaire will be finalised and converted into the local Gujarati language for effectively data collection. A researcher personally introduced to farmers and individually information collected through verbally response.

(6) SCOPE OF THE STUDY

The present investigation focuses on assessing the impact of Front Line Demonstrations implemented by selected KVKs are well functioning in the *Saurashtra* region of Gujarat. The investigation measures the impact assessment of Front Line Demonstration in term of knowledge level, level of adoption about recommended practices, crop productivity and economic returns. The present research work generates to insights into the impact of Front Line Demonstrations are wider dissemination of agricultural technologies under the local agro-climatic farm conditions.

The conclusion of this research will be helpful to extension personal, KVKs scientists and policymakers for strengthening the planning, implementation and surveillance of Front Line Demonstrations. This research will be identify gap between traditional method of farmers and

demonstrated morden technologies, that provide the constraints and suggestion for the next implementing technologies. The research conclusion also helpful to the researcher, academic literature in extension education and also useful as reference for future study on the impact assessment of extension programmes.

(8) REFERENCES

Akash, K. P. (2024). Impact of Front Line demonstrations implemented by Krishi Vigyan Kendra Chikkamagaluru (Ph. D. thesis, Keladi Shivappa Nayaka University of Agricultural And Horticultural Sciences Shivamogga).

Anonymous, (2026). Front Line Demonstration information https://icar.org.in/en/agricultural-extension-division/krishi-vigyan-kendra-kvk-farm-science-centre Accessed on 27 march, 2026.

Bidve, G. R.; Sasane G. K.; Wankhade S. A. and Bhange, S. B. (2021). Socio economic, communicational and psychological characteristics of pomegranate growers from western Maharashtra. *The Pharma Innovation Journal*, **10(9)**: 283-287.

Chaudhary, A. N.; Patel, G. R. and Chaudhary, K. V. (2022). Relationship with level of knowledge about mungbean production technology and profile of FLD and non-FLD farmers. *Young*, **14(20)**: 12-22.

Chaudhary, R. P.; Choudhary, G. K.; Prasad, R.; Singh, R. and Chaturvedi, A. K. (2018). Impact assessment of front line demonstration on mustard crop. *International Journal of Current Microbiology and Applied Sciences*, **7**: 4737-4742.

Gogoi, B. P.; Bhuyan, N.; Borthakur, A. K.; Sirilakshmi, Y.; Gogoi, R., and Dutta, M. (2024). Behavioral insights into farmers adoption of improved rapeseed-mustard cultivation practices in North Bank Plain Zone of Assam, India. *Journal of Scientific Research and Reports*, **30(12)**: 151-158.

Hashim, M.; Singh, K. K.; Kumar, N.; Deo, M. M.; Singh, D. and Kumar, M. (2023). Impact of Front Line Demonstrations in improving rice productivity and profitability in Jaunpur district of Uttar Pradesh, India. *Journal of Experimental Agriculture International*, **45(11)**: 74-82.

K. S. Das; R. K. Kumar, B. Mishra and S. K. Sahoo. (2024). Adoption of cabbage cultivation technology by the farmers of Khordha district of Odisha, India. *Asian Journal of Agricultural Extension, Economics & Sociology*, **42(4)**: 115–122.

Kachchhava, T. L.; Patel, J. K. and Parmar, H. A. (2023). Technological gap and its relationship with selected characteristics of muskmelon growers in recommended muskmelon production technology. *Gujarat Journal of Extension Education*, **35(1)**: 16-21.

Karthickraja, M.; Premavathi, R.; Murugan, P.P. and Vanetha, K. P. (2023). Constraints Faced by the groundnut growers in adoption of cluster frontline demonstration of Villupuram district. *Madras Agricultural Journal*, **110 (9)**: 91 95.

Kumar, A.; Doharey, R. K.; Kumar, G.; Verma, A.; Verma, A. K. and Dixit, A. (2024). Socio-Economic profile of onion growers of Kanpur nagar of Uttar Pradesh, India. *Asian Journal of Agricultural Extension, Economics and Sociology*, **42(5)**: 323-332.

Kumar, V.; Sharma, V.; Singh, M. and Sharma, S. C. (2022). Productivity enhancement and popularization of improved production technologies in pulses through frontline demonstrations in dryland systems. *Indian Journal of Dryland Agricultural Research and Development*, **37(1)**: 10-14.

L. Lenin and Syed H. Mazhar (2024). Adoption behaviour of farmers towards improved mustard cultivation practices in Kakching district of Manipur. *International Journal of Agriculture Extension and Social Development*, **7(7)**: 165-169.

Negi, P. (2023). A study on knowledge and adoption of improved technologies by the rapeseed-mustard growers of Udham Singh nagar district of Uttarakhand (Doctoral dissertation, M. Sc. Thesis, GB Pant University of Agriculture & Technology, Pantnagar-263145, Uttarakhand, India).

Patel, R. J.; Mistry, J. J. and Chaudhary, K. V. (2023). Association between characteristics of groundnut growers and their level of knowledge about plant protection measures. *The Pharma Innovation Journal*, **12(12)**: 2606-2610.

Tankodara, K. D.; Gohil, G. R. and Khunt, K. R. (2023). A study on chickpea growers' adoption of recommended chickpea production technology in Junagadh district of Gujarat state. *International Journal of Agriculture Science*, **36(2)**; 64-67.

Raviya, P. B. (2020). Knowledge, attitude and utilization of information and communication technology services by farmers of Saurashtra region of Gujarat state. (Ph. D. thesis, Junagadh Agricultural University, Junagadh).

Singh, A.; Singh, A. K.; Rajpoot, A. S.; Digarse, U. and Kumar, A. (2024). Socio economic and psychological attributes of sugarcane growers of Bareilly district of Uttar Pradesh. *Journal of Scientific Research and Reports*, **30(1)**: 71-80.

Sonu, K. and Jha, K. K. (2025). Knowledge gap and path analysis of adoption of Makhana (*Euryale Ferox Salisb*) growers in Bihar. *Indian Journal of Extension Education*, **61(1)**: 83-88.

T. L. Kumar.; Sai, A. K.; Parmar, K.; Hembram, D.; Pal, D. and Kushwaha, R. K. (2017). Socio-economic characteristics of wheat growers regarding adoption of improved wheat

production technology in Kanpur Dehat district, Uttar Pradesh (India). *International Journal of Current Microbiology and Applied Sciences*, **6(12)**: 2225-2229.

Verma, A. K.; Doharey, R. K.; Dubey, S. K.; Singh, O. P. and Singh, S. N. (2022). Determinants of behavioural indicators of potato (*Solanum tuberosum L.*) growers in Kannauj district of Uttar Pradesh. *The Indian Journal of Agricultural Sciences*, **92(2)**: 236-239.

-: CERTIFICATE :-

This is to certify that the above mentioned research proposal made by Ph. D. student **KOYANI BADAL KAILASHBHAI (Reg. No. 1010125012)** on the topic of **"Impact Assessment of Front Line Demonstrations (FLDs) Conducted by Krishi Vigyan Kendras of *Saurashtra* Region of Gujarat State"** for partial fulfilment of his doctoral programme in the discipline of Agricultural Extension Education has been approved by Research Advisory Committee during the academic year 2025-26.

Signature of Major Guide and the Members of the Advisory Committee

GUIDE & MEMBERS	NAME	DESIGNATION & ADDRESS	SIGNATURE
Major Guide (Agril. Extension Education)	Dr. J. V. Chovatia	Assistant Professor Dept. of Agril. Extn. Edu. College of Agriculture JAU, Junagadh	
Minor Guide (Agril. Economics)	Dr. V. D. Tarpara	Associate Director of Research Directorate of Research JAU, Junagadh	

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Recommended by

Signature and Stamp of
Major Guide

Signature and Stamp of
Professor and Head

Place: Junagadh
Date: /04/2026

Research Proposal Letter

This is to certify that above mentioned research proposal of Ph. D. student **KOYANI BADAL KAILASHBHAI (Reg. No. 1010125012)** has been approved and recommended by Research Approval Committee (Agricultural Extension Education) during the year 2025-26 for partial fulfillment of doctoral program in the discipline of Agricultural Extension Education.

(J. V. Chovatia)
(Signature of Major Guide)

( )
(Signature of Head of Department)

Place: Junagadh

Date: /04/2026